



October 8, 2020

Mr. Aaron Jozsef  
Special Projects and Processes Manager  
Resolve Marine Group  
1510 SE 17<sup>th</sup> Street, Suite 400  
Ft. Lauderdale, FL 33316

**Subject: Mayor's Point – Site Survey Report  
Pac Comm Property  
1029 Bay Street  
Brunswick, Georgia**

Dear Mr. Jozsef:

Tetra Tech, Inc. (Tetra Tech) is pleased to submit this Site Survey Report summarizing the results of our investigation at the Pac Comm property at 1029 Bay Street, Brunswick, Georgia. This report includes two enclosures and three attachments. Enclosure 1 contains figures. Enclosure 2 contains the Tetra Tech field logbook notes. Attachment 1 is the geophysical subcontractor's report. Attachment 2 contains the optical image profile (OIP) logs for each boring location. Attachment 3 contains the laboratory analytical report.

## **BACKGROUND**

The United States Coast Guard (USCG) has been investigating a continuous discharge of oil from the Georgia Port Authority (GPA) Mayor's Point Facility and the neighboring Pac Comm, Inc property (the Site) into the navigable waterway of the East River since 2018 (see Figure 1 in Enclosure 1 A). The USCG Marine Safety Lab (MSL) identified the discharging oil as "weathered gasoline mixed with light fuel oil and lubricating oil." Terracon was retained to conduct an investigation on the GPA property to identify possible sources of the oil. After conducting a ground-penetrating radar survey, Terracon installed numerous groundwater monitoring wells and collected numerous soil samples across the southwest portion of the GPA property. Terracon concluded that the source of the oil was not on the GPA property.

Terracon's investigation suggested that the most-likely source of the discharging oil was to the south of the GPA property. The parcel immediately to the south of the GPA property is owned by Pac Comm, Inc. and is currently leased to Weeks Marine as an equipment staging yard for the *Golden Ray* salvage operation. Previously, the Pac Comm property was used by various businesses that supported the local fishing fleet with fuel, stores, and ice for over half a century. Most recently it was used for storage and crushing of demolition debris for road and parking lot material. Records indicate that two underground storage tanks (USTs) were installed on site: an 8,000-gallon diesel tank and a 5,000-gallon gasoline tank. Records indicate that both tanks were removed by 2003.

South of the Pac Comm property is Ocean Petroleum, a fueling terminal with a tank battery containing at least three large vertical bulk storage tanks and eight horizontal storage tanks.



In 2020, the USCG secured access to the Pac Comm property to investigate the Terracon conclusion that the source of the oil discharge was to the south of the GPA property. This report provides Tetra Tech's results of the investigation on the Pac Comm property and presents our conclusions.

## **MOBILIZATION**

Prior to mobilization, Tetra Tech alerted the GA811 ("call-before-you-dig") system so that utility providers could mark buried lines around the Pac Comm property. Resolve Marine, Tetra Tech, and Tetra Tech-procured subcontractors mobilized to the site on September 21, 2020 to begin the site survey. The current tenant, Weeks Marine, expressed concerns about the potential spread of the COVID-19 virus. The USCG decided to limit interaction between Weeks Marine staff and personnel associated with this investigation by conducting all site survey work between the hours of 1800 and 0600, when no personnel from Weeks Marine would be on site.

## **GEOPHYSICAL SURVEY**

Tetra Tech-procured geophysical subcontractor GEL Solutions, LLC (GEL) who conducted two tasks during the night of September 21<sup>st</sup>: (1) verification that all proposed boring locations were free of subsurface structures; and (2) survey the site for any subsurface objects that could be potential sources of the discharging oil. GEL used a variety of techniques to accomplish their tasks, including electrical conductivity, ground-penetrating radar (GPR), and electromagnetism. A summary of the modes of operation and the capabilities of these techniques is provided in GEL's report, included as Attachment 1.

GEL was able to identify numerous buried utilities on the eastern portion of the site, as well as

"An anomaly in the GPR data consistent with excavation and reworked soils or subsurface objects was consistently observed within the southeastern corner of the site ... Its extents appear to be approximately 20' x 50', although its western bounds could extend further west beneath the adjacent building. The top of the anomaly is approximately three feet below ground surface. The three unknown features could possibly be associated piping with some sections removed."

GEL detected no other anomalous subsurface objects during their site survey. However, it should be noted that portions of the site were inaccessible to the geophysicists because of staged equipment and materials, and rubble from past site activities.

Depictions of the geophysical results and areas of inaccessibility are provided in Figures 1 through 4 in Attachment 1.

## **DRILLING OPERATIONS**

Drilling subcontractor GeoLab Drilling advanced a total of 15 borings at 13 locations using an optical image profiling (OIP) tool logged and operated by their subcontractor, Pro-Tech Environmental Support Services. The OIP tool was attached to the direct-push tool string and driven with a track-mounted Geoprobe 6000-series drill rig.

The OIP is a tool for mapping light non-aqueous phase liquids (LNAPL), residual LNAPL, and light oils. The OIP system uses a 275-nanometer ultraviolet (UV) light emitting diode (LED) to produce



fluorescence from the polycyclic aromatic hydrocarbons (PAHs) contained in fuels and light oils. The UV light is directed out a sapphire window in the side of the probe onto the soil. When LNAPL fuels are present, the PAH molecules will absorb the UV light energy and shortly afterwards emit a light photon (fluorophore) which is the resultant fluorescence. Directly behind the sapphire window, the onboard camera captures images of the soil and any fluorescence produced by hydrocarbon contaminants present. The acquisition software analyzes each pixel of the images taken for the presence of color typical of fuel fluorescence. If there is no fuel present in the formation, the returned camera image will appear black or dark under the UV light source. The OIP acquisition software logs percent area fluorescence (%AF) with depth where higher percentages correspond to higher levels of LNAPL. The OIP camera operates at 30 frames per second and data is processed in 0.05-foot intervals.

The drillers completed eight of the nine pre-selected boring locations the first night, starting at boring location A1, in the northwest corner of the site by the area of known contamination on the GPA property, and working outwards (see Figure 2 in Enclosure 1). The ninth pre-selected boring location (C1) was completed the following night. The team then advanced six additional borings to attempt to refine the eastern extent of the plume. Boring locations are depicted on Figure 2 in Enclosure 1. Copies of the OIP logs are included in Attachment 2.

Figure 3 in Enclosure 1 depicts an iso-contour map of the peak %AF from each of the borings. Tetra Tech employed modeling software to interpolate contamination levels across the site, based on the boring logs from the OIP. The resultant plume model is presented as Figure 4 in Enclosure 1. It should be noted that the OIP sapphire window cracked at a depth of approximately 8 feet below ground surface at boring B15. The window was replaced, and two additional borings were logged at the location (B15a and B15b, each offset approximately 2 feet from the original boring) to confirm equipment functionality and evaluate subsurface heterogeneity. The boring log from the first boring (B15) is the data that is used for that location in the plume model.

In addition to OIP logging, the Geoprobe drill rig was used to collect two subsurface soil samples for laboratory analysis. Tetra Tech collected sample PC-SB-C3 from 7 to 8 feet below ground surface (bgs) from boring location C3 and PC-SB-C1 from 7 to 8 feet bgs from boring location C1. These borings were selected because they represented a high peak (C1) and a “no peak” (C3) reading observed during the OIP logging. These samples were used to verify OIP data and the presence of LNAPL. USCG personnel collected a duplicate sample from C1 for submission to the MSL. Both Tetra Tech samples were placed in an iced cooler and hand-delivered to the TestAmerica/Eurofins laboratory in Savannah, Georgia under proper chain of custody on September 23<sup>rd</sup>.



## RESULTS

OIP logs identified the following percent area fluorescence (%AF) peaks in the 15 boring locations:

<b>Boring</b>	<b>Depth (ft bgs)</b>	<b>Percent Area Fluorescence</b>
A1	7.25	29.2 %
A15	No peaks observed	
A2	No peaks observed	
A3	6.8	1.7%
B1	15.75	48.3%
B15	4.15	51%
B15a	4	1.5%
B15b	5.75	29.4%
B2	3.35	7.3%
B3	No peaks observed	
C1	7.2	74.4%
C125	1.95	10.6%
C15	No peaks observed	
C2	No peaks observed	
C3	No peaks observed	

Notes:

bgs – Below ground surface

ft – Feet

The results of laboratory analysis of the two subsurface soil samples are summarized below:

<b>Analysis</b>	<b>Boring C1 (7-8 feet bgs)</b>	<b>Boring C3 (7-8 feet bgs)</b>
Gasoline-range Organics	50 mg/kg	Non-detect
Diesel-range Organics	49 mg/kg	Non-detect
Oil-range Organics	370 mg/kg	Non-detect

Notes:

Bgs – Below ground surface

mg/kg – Milligram per kilogram

A copy of the laboratory analytical report is included in Attachment 3.

## CONCLUSIONS

The plume model shows a petroleum gradient decreasing from south to north. This suggests that the source of the plume is to the south. The model also indicates that petroleum-impacted soil may be present in a thicker layer around boring B15. The east/west extent of the plume corresponds to the east/west extent of the plume determined by Terracon during their investigation of the GPA property. Laboratory analysis confirmed that OIP peaks corresponded with petroleum contamination and that an absence of



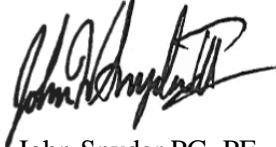
peaks corresponded with an absence of petroleum contamination. The laboratory analysis of the contaminants detected in boring C1 agree with the MSL oil analysis: the plume is composed of a mixture of short-, medium-, and long-chain hydrocarbons.

Based on the absence of detected petroleum hydrocarbons in the soil sample collected from boring C3 and the absence of OIP peaks in that boring, the GPR anomaly identified by GEL does not appear to be the source of a petroleum plume. The geophysical investigation identified no other subsurface structures that were suggestive of a possible plume sources buried on site.

The results of the Tetra Tech investigations on the Pac Comm property combined with the results of the previous Terracon investigation on the GPA property suggest that the source of the plume is either beneath the currently-inaccessible portion of the site in the southwest corner, or on the Ocean Petroleum property located directly to the south of the site.

If you have any questions or need additional copies of this letter report, please call me, John Snyder, at (678) 775-3085.

Sincerely,



John Snyder PG, PE  
Tetra Tech Field Team Lead



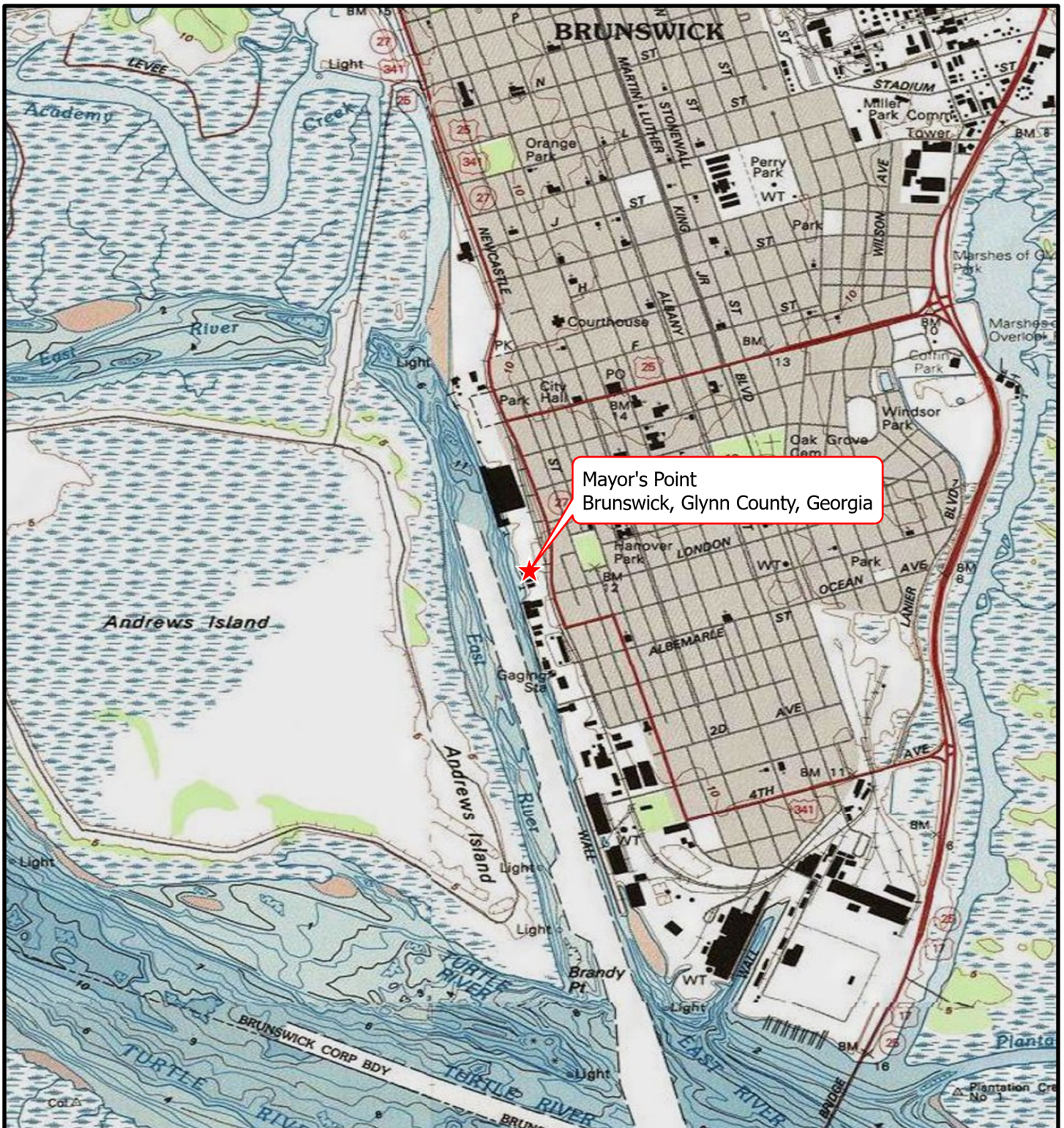
Christopher Jones  
Tetra Tech Project Manager



## **ENCLOSURE 1**

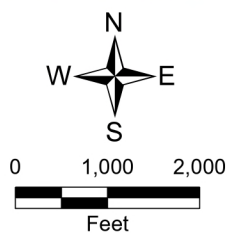
### **FIGURES**

(Four Pages)



#### Legend

★ Site Location



Map Source:  
USGS 7.5 Minute Topographic Quadrangle Maps:  
Brunswick East, GA 1980 and Brunswick West, GA 1980.



#### FIGURE 1

#### Site Location

**Site Name:** Mayor's Point

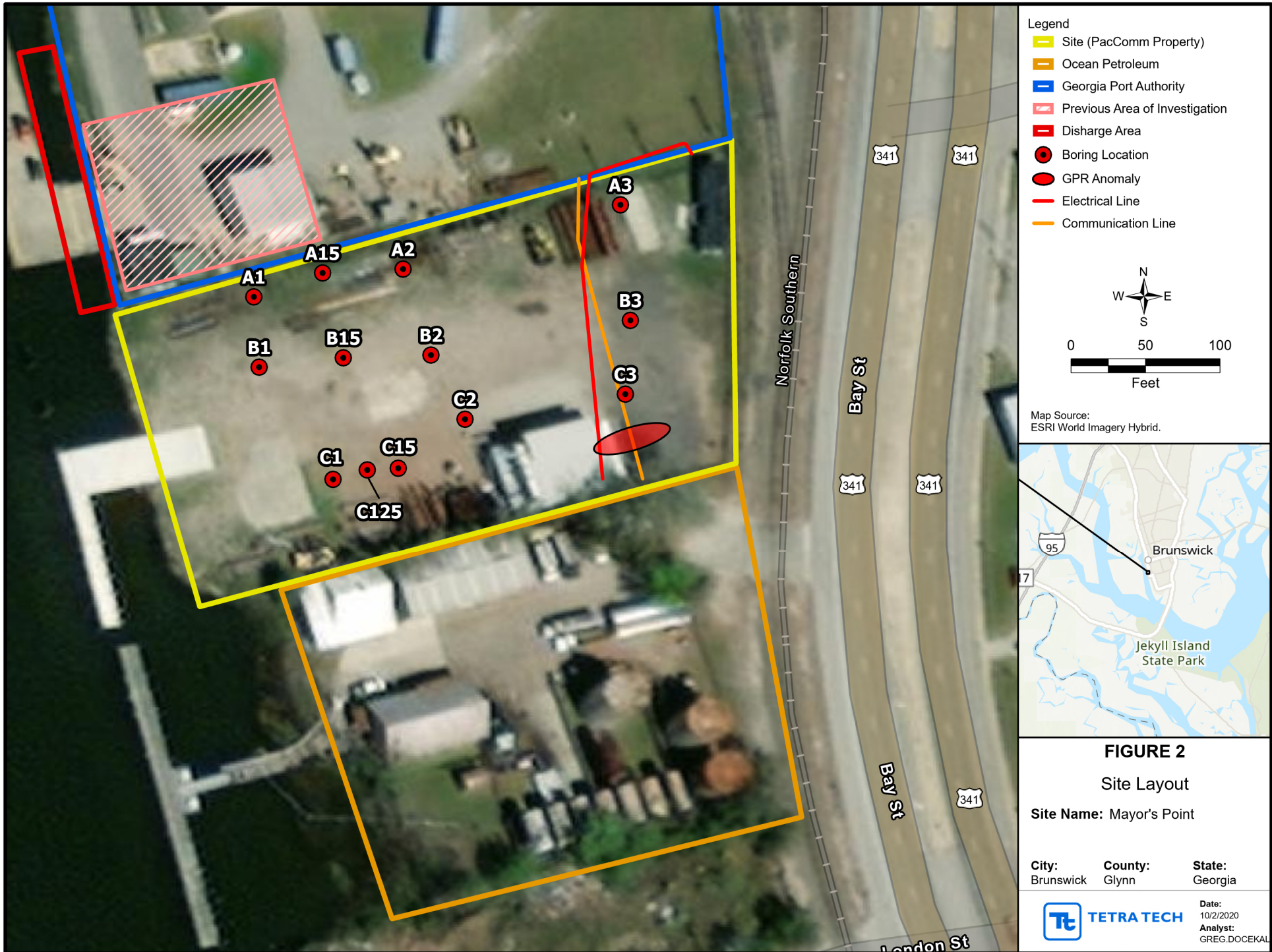
**City:**  
Brunswick

**County:**  
Glynn

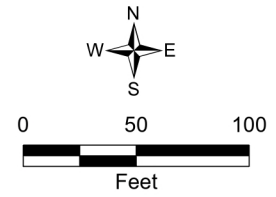
**State:**  
Georgia



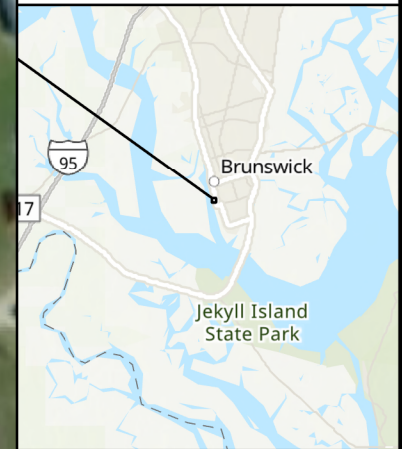
**Date:**  
10/2/2020  
**Analyst:**  
GREG DOCEKAL



- Legend**
- Site (PacComm Property)
  - Ocean Petroleum
  - Georgia Port Authority
  - ▨ Previous Area of Investigation
  - Discharge Area
  - Boring Location
  - GPR Anomaly
  - Electrical Line
  - Communication Line



Map Source:  
ESRI World Imagery Hybrid.



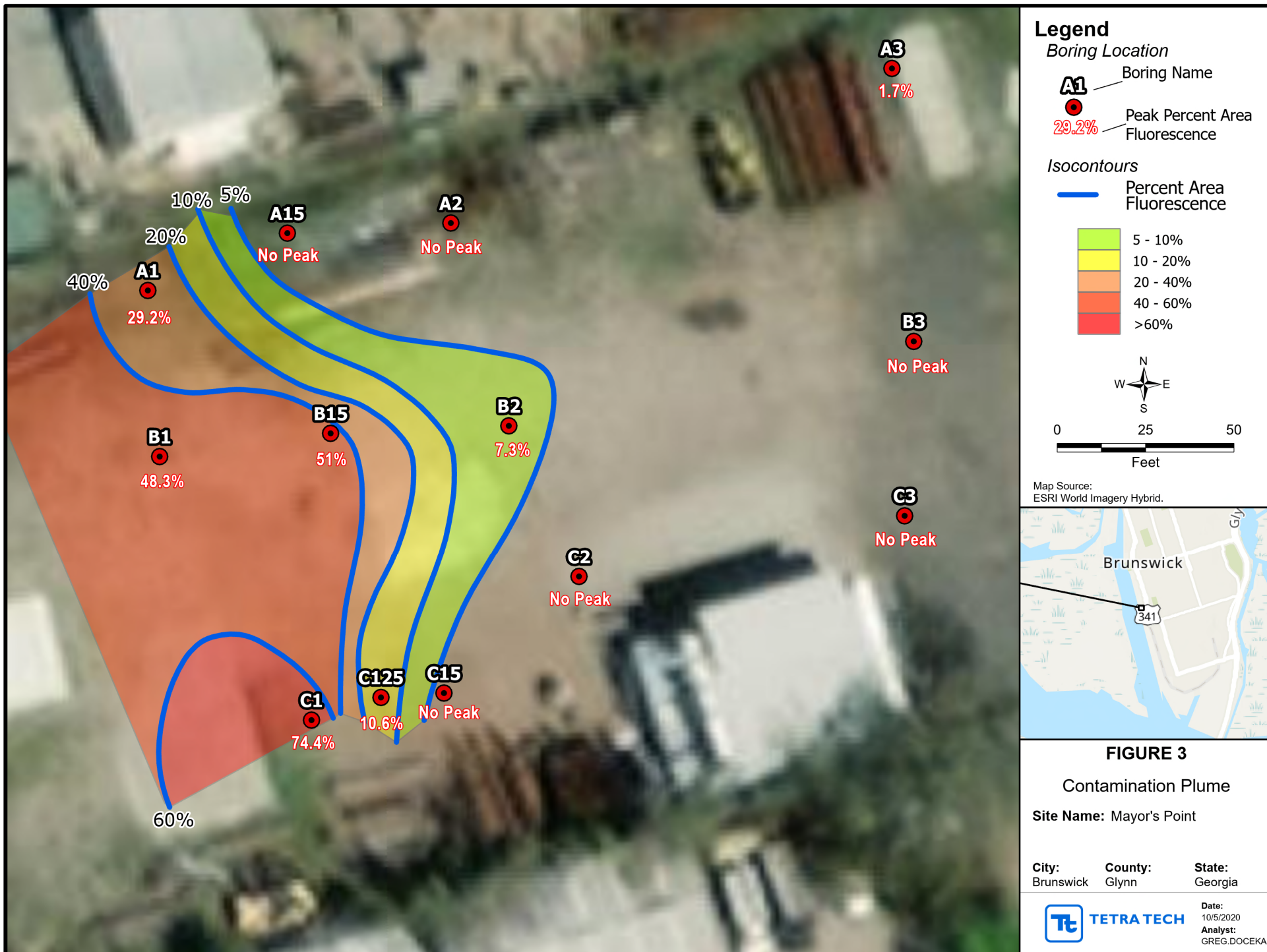
**FIGURE 2**

Site Layout

Site Name: Mayor's Point

<b>City:</b> Brunswick	<b>County:</b> Glynn	<b>State:</b> Georgia
---------------------------	-------------------------	--------------------------

	<b>Date:</b> 10/2/2020
	<b>Analyst:</b> GREG.DOCKAL



# BRUNSWICK SITE

Projected Coordinate System:  
NAD\_1983\_StatePlane\_Georgia\_East\_FIPS\_1001\_Feet

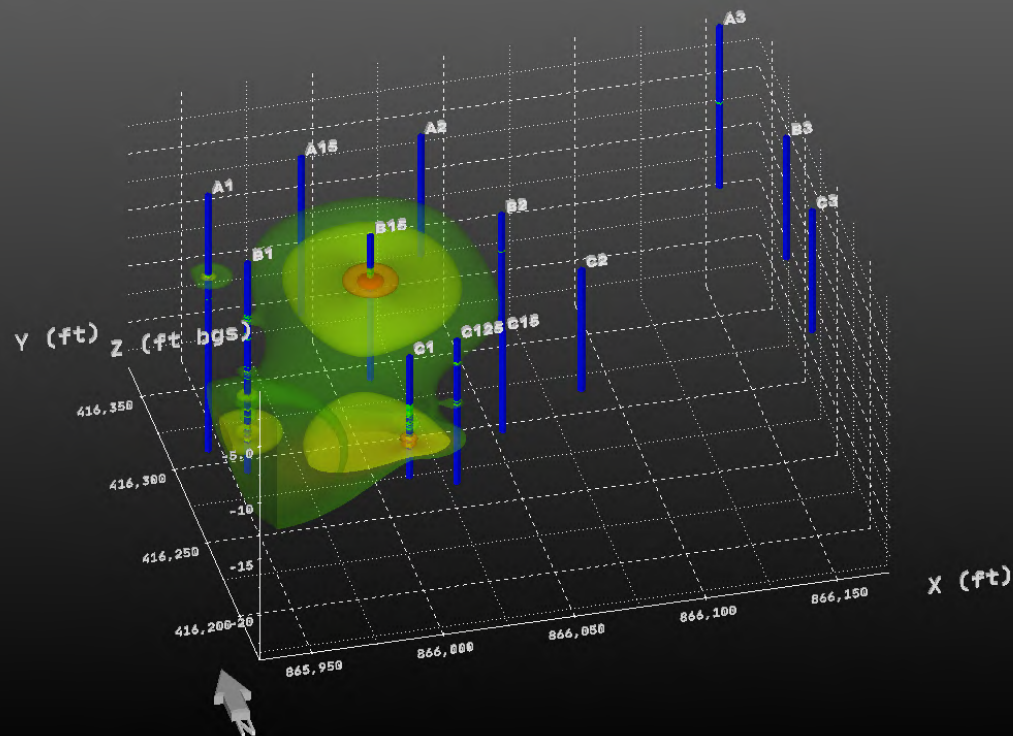
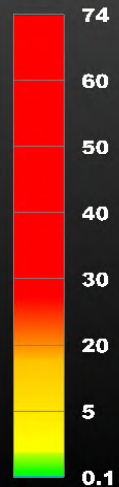
Thresholds (%)

2.0  
5.0  
20.0  
30.0



TETRA TECH

FLUORESCENCE (%)



**FIGURE 4**

Plume Model

Site Name: Mayor's Point

City:  
Brunswick

County:  
Glynn

State:  
Georgia



Date:  
10/2/2020  
Analyst:  
GREG.DOCKAL

**ENCLOSURE 2**  
**LOGBOOK NOTES**  
(Five Sheets)



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Phone

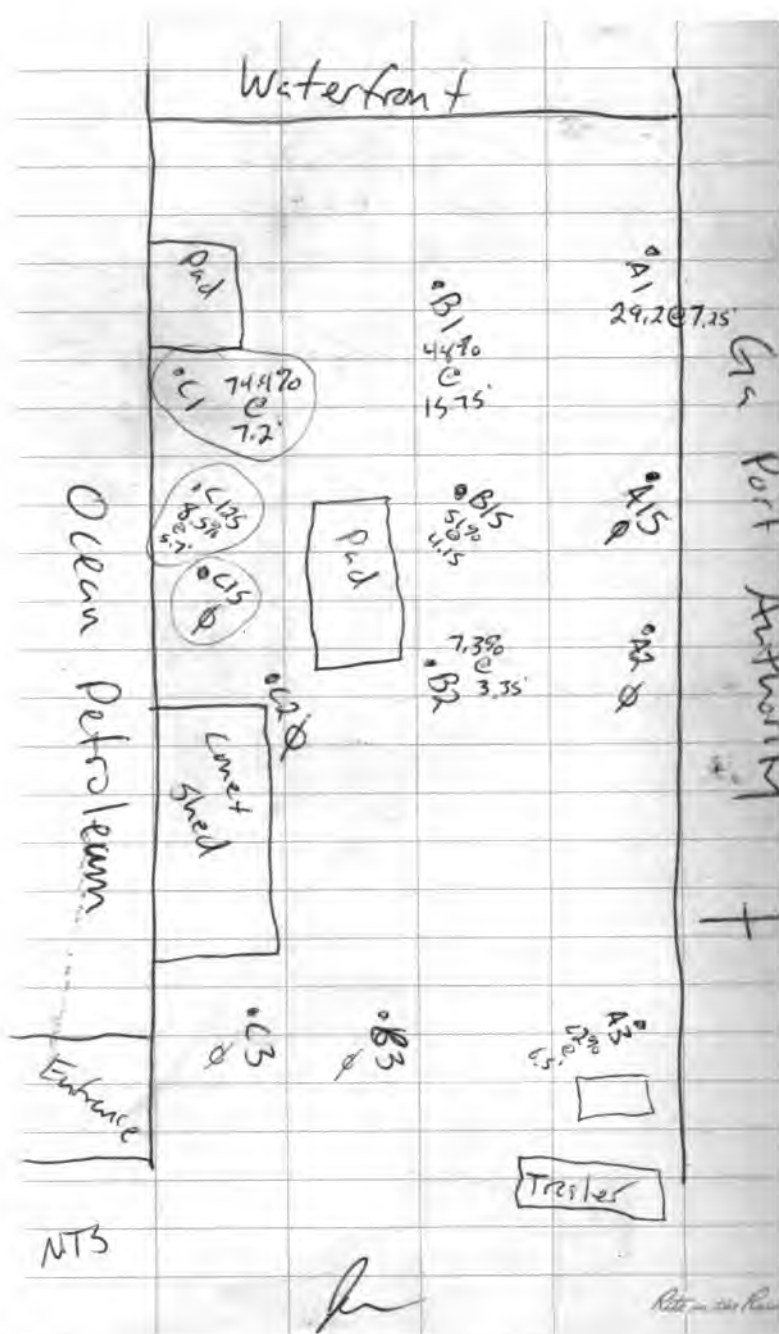
Project



**RiteintheRain.com**

4/21/2020

- 1730 - Meet off site w/ Resolve  
 Josef, Geolch, + GEL to  
 discuss H+S, logistics, etc
- 1800 - On site to meet w/ USCG  
 + begin planning / site walk.  
 - Layout boring locations A1 thru C3  
 for GPR to clear.
- 1820 - Protect on site (OIP sub)
- 1830 - Sheen observed along river front,  
 southern portion of site  
 Resolve screens - 10% LEL
- 1900 - Geolch begins boring A-1  
 A1 spiked @ 7.25' bys @ 29.2%
- 2000 - Begin boring A-2  
 - total depth = 12' bys No spikes
- 2120 - Begin boring B-2  
 spike @ 3.35' @ 7.3%
- 2140 - Setup on C2  
 No spikes to 12' bys
- 2210 - Set up on C1  
 spike @ 74.4% @ 7.2'
- 2235 - Move to B1  
 48% @ 17.5' 15.75'
- 2300 - Set up on C3  
 No spikes down to 12'



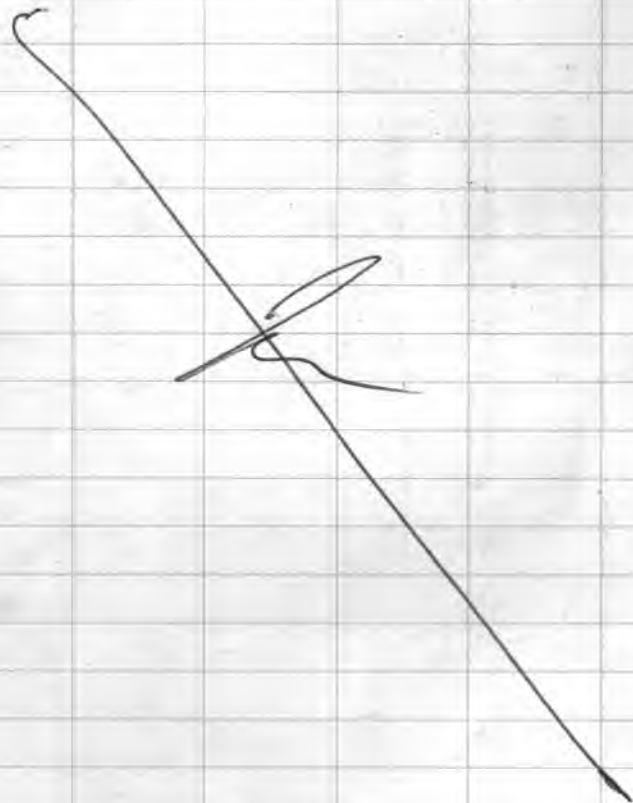
9/21/2020 cont'd

2315 - GEL off site

2320 - Setup on B-3

No spikes down to 10.8'

2015 - All off site



9/22/2020

1730 - T + Snyder, Resolve, Geolab, +  
ProTech meet off site to discuss  
ops + H+S for the day

1800 - All on site to resume OIP  
work

1810 - ProTech/Geolab setting up  
OIP Equipment.

- Resolve procured plumber to  
snake mystery pipe in shoreline

1845 - Setup on A-3  
small spike (2% @ 6.5')

1905 - Setup on C-15  
- refusal @ ~9.5'. No spikes noted

1935 - Setup on C-12S  
spike 8.5% @ 5.7'

2005 - Setup on B-15  
- spike 51% @ 4.15'  
- glass shattered, will redo

2200 - Still troubleshooting OIP,  
will collect soil samples

2210 - Collect PC-SB-C3 from 7-8'

2220 - Collect PC-SB-C1 from 7-8'

- Duplicate sample collected by USCG

2325 - Redrill B-15 (B-15B)

spike 29.4% @ 5.75' bgs

*[Signature]*

*Rite in the Rain*

Borehole Coordinates 9/22/2020 notes  
 - collected w/ Trimble GeoExplorer 6000  
 Pme inventory 32861  
 Pressure ~ 3.8 ft to 30" Georgia East

Boring	Northing (Feet)	Eastng (Feet)	Alt (HAE, ft)
B2	416262.55	866045.19	-93.90
A1	416300.83	865943.09	-92.74
A2	416319.90	866028.79	-91.94
B1	416253.87	865946.43	-96.26
A3	416363.61	866153.55	-90.26
B3	416286.43	866159.72	-93.29
C3	416237.11	866157.14	-92.99
C1	416179.15	865989.38	-91.81
C125	416185.56	866009.03	-93.41
C15	416186.80	866026.84	-91.13
C2	416219.79	866065.04	-94.29
B15	416260.43	865994.78	-91.74
A15	416317.04	865982.55	-87.02

2355 - Set up on A-15

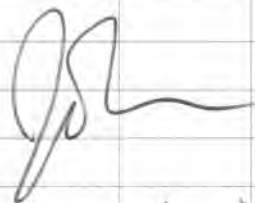
- no spikes observed

2005 - Pack up equipment

0055 - All off site



End of  
field work



9/23/20

**ATTACHMENT 1**

**GEL SOLUTIONS GEOPHYSICAL INVESTIGATION REPORT**

(8 Pages)



September 24, 2020

Mr. Chris Jones  
Tetra Tech  
1955 Evergreen Blvd, Suite 300  
Duluth, Georgia 30096

**Geophysical Investigation, PAC COMM INC. Property,  
Brunswick, Georgia**

Dear Mr. Jones:

This letter serves as a report for the geophysical investigation performed by GEL Solutions, LLC on September 21, 2020 at the PAC COMM INC. site in Brunswick, Georgia. This investigation was conducted to clear boring locations of underground utilities and to determine if any Underground Storage Tanks (USTs) and/or associated piping remain on the site.

**Equipment**

The information below is an overview of the geophysical equipment and methodologies used for this investigation. The intent of this overview is to give the reader a better understanding of each method, and background information as to what is actually measured, the resolution of the method, and the limitations imposed by site-specific subsurface conditions.

CMD-1

CMD-1 measures variations in electrical conductivity and magnetic susceptibility of subsurface materials. The conductivity is determined by inducing a primary electromagnetic field and measuring the amplitude and phase shift of an induced secondary magnetic field. The secondary magnetic field is created by subsurface conductive materials behaving as an inductor as the primary field is passed through them.

Terrain conductivity systems such as the CMD-1 are commonly used to delineate variations in ground conductivity. There are two components of the induced electromagnetic field measured by the CMD-1 system. The first is the quadrature-phase (out-of-phase) component that measures the bulk conductivity of soil and groundwater. The conductivity readings increase or even become negative when the sensors are close to metallic objects. The second is the in-phase component that measures the magnetic susceptibility and is therefore more sensitive to isolated metallic objects such as pipes, drums, underground storage tanks, and other metallic debris. Both positive and negative readings indicate subsurface metal. By observing the response of the in-phase and quadrature-phase components, it is possible to differentiate whether a change in bulk conductivity is due to the presence of buried metallic objects or due to changes in subsurface soil conditions or pore fluid conductivity.

The presence of metal buildings, fences, and other metallic surface objects cause interference and makes data interpretation for subsurface features near these objects difficult. The CMD-1 has an

effective depth of exploration of up to approximately 5 feet below ground surface. However, the ability to detect small features decreases with depth.

#### Ground Penetrating Radar

GPR is an electromagnetic method that detects interfaces between subsurface materials with differing dielectric constants. The GPR system consists of: an antenna, which houses a transmitter and receiver; a profiling recorder, which processes the received signal and produces a graphic display of the data; and a video display unit, which processes and transmits the GPR signal to a color video display and recording device.

The transmitter radiates repetitive short-duration EM signals into the earth from an antenna moving across the ground surface. Electromagnetic waves are reflected back to the receiver by interfaces between materials with differing dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal. Subsurface features which may cause such reflections are: 1) natural geologic conditions such as changes in sediment composition, bedding and cementation horizons, voids, and water content; or 2) man introduced materials or changes to the subsurface such as soil backfill, buried debris, tanks, pipelines, and utilities. The profiling recorder receives the signal from the antenna and produces a continuous cross section of the subsurface interface reflections, referred to as "reflectors" or "reflection events."

Depth of investigation of the GPR signal is highly site specific, and is limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clays and brackish groundwater, and lowest in relatively low conductivity materials such as unsaturated sand or rock. In addition, the presence of reinforcement bar in concrete structures may severely attenuate the GPR signal such that objects below the slab may be undetectable. Depth of investigation is also dependent on antenna frequency and generally increases with decreasing frequency; however, the ability to identify smaller subsurface features is diminished with decreasing frequency.

GEL Solutions uses GPR antennas, which are internally shielded from above-ground interference sources. Accordingly, the GPR signal is not affected by nearby aboveground conductive objects such as metal fences, overhead power lines, and vehicles. Therefore, no spurious reflection events are generated on the GPR data by aboveground features, which could lead to false interpretation of subsurface anomalies.

#### Radiofrequency Electromagnetics

Radio Frequency Electromagnetic (EM) utility locating equipment consists of a transmitter and a dual-function receiver. The receiver can be operated in a "passive" mode or in an "active" mode. The two modes of operation provide various levels of detection capabilities depending on the specific target or application. The EM system is operated in the "active" mode by either inducting or conducting a signal into the underground utility to be traced. A transmitter is placed over and in line with a suspected buried utility. The transmitter induces a signal, which propagates along the buried utility. As the receiver is moved back and forth across the suspected path of the utility, the trace signal induces a signal into the

receivers coil sensor. A visual and audio response indicates when the receiver is directly over the buried utility. Another means of detecting in the “active” mode utilizes a method to “conduct” a signal within the buried utility accomplish this, a cable from the transmitter is clamped onto an exposed section of the buried utility and a signal propagates along the buried line. This technique minimizes any interference caused by parasitic emissions from adjacent cables in congested areas. When the system is utilized in the “passive” mode, the receiver is responding to a 60 Hertz cycle current energized by underground utilities.

Interference can and may occur when buried utilities intersect or are adjacent to each other. This effect referred to as “bleed-off” may provide a false response to the identification of the tracked utility. “Bleed-off” is caused by utilities that may be energized in the “active” or “passive” mode.

### **Scope of Work and Methodology**

Buried utilities on the property were located using a radiofrequency EM pipe and cable locator and a dual-frequency (170 Mhz and 600 Mhz) ImpulseRadar GPR antenna. GEL Solutions used RTK/GPS to determine the horizontal location of utilities identified in the field.

GPR data was recorded concurrently with RTK/GPS positioning along orthogonal sets of profiles approximately spaced 5-feet apart in all accessible areas of the site. CMD-1 data was also collected concurrently with RTK/GPS positioning along orthogonal sets of profiles spaced approximately 5-feet apart in all accessible areas of the site. Boring positions and the extent of areas with limited access due to surface obstructions were determined using RTK/GPS.

### **Results**

Utilities and other features identified using radiofrequency EM and GPR, as well as boring locations and areas with limited access, are shown in Figure 1. No underground features were identified in the western portion of the site. The eastern end of the site contained electric and telecommunications lines along with three unknown linear features identified with GPR, which could be piping.

An anomaly in the GPR data consistent with excavation and reworked soils or subsurface objects was consistently observed (e.g. Figure 2) within the southeastern corner of the site. The location of this GPR anomaly is shown in Figure 1. Its extents appear to be approximately 20' x 50', although its western bounds could extend further west beneath the adjacent building. The top of the anomaly is approximately 3 feet below ground surface. The three unknown features could possibly be associated piping with some sections removed.

CMD-1 conductivity and in-phase results are shown in Figures 3 and 4, respectively. Generally, in the western half of the property and along its margins, conductivity and in-phase are elevated due to various metal salvage parts at the surface. Parked vehicles and a trailer on the eastern edge of the property caused significant positive anomalies. A reinforced concrete pad in the northeastern corner resulted in a large negative anomaly. A vehicle parked in the southeastern corner just east of the building also resulted in a significant anomaly. A linear, slightly positive conductivity/slightly negative in-phase anomaly trending SW-NE through the approximate center of the property (Figures 3 and 4) is not associated with any surface features and could represent a buried pipe or other type of utility.

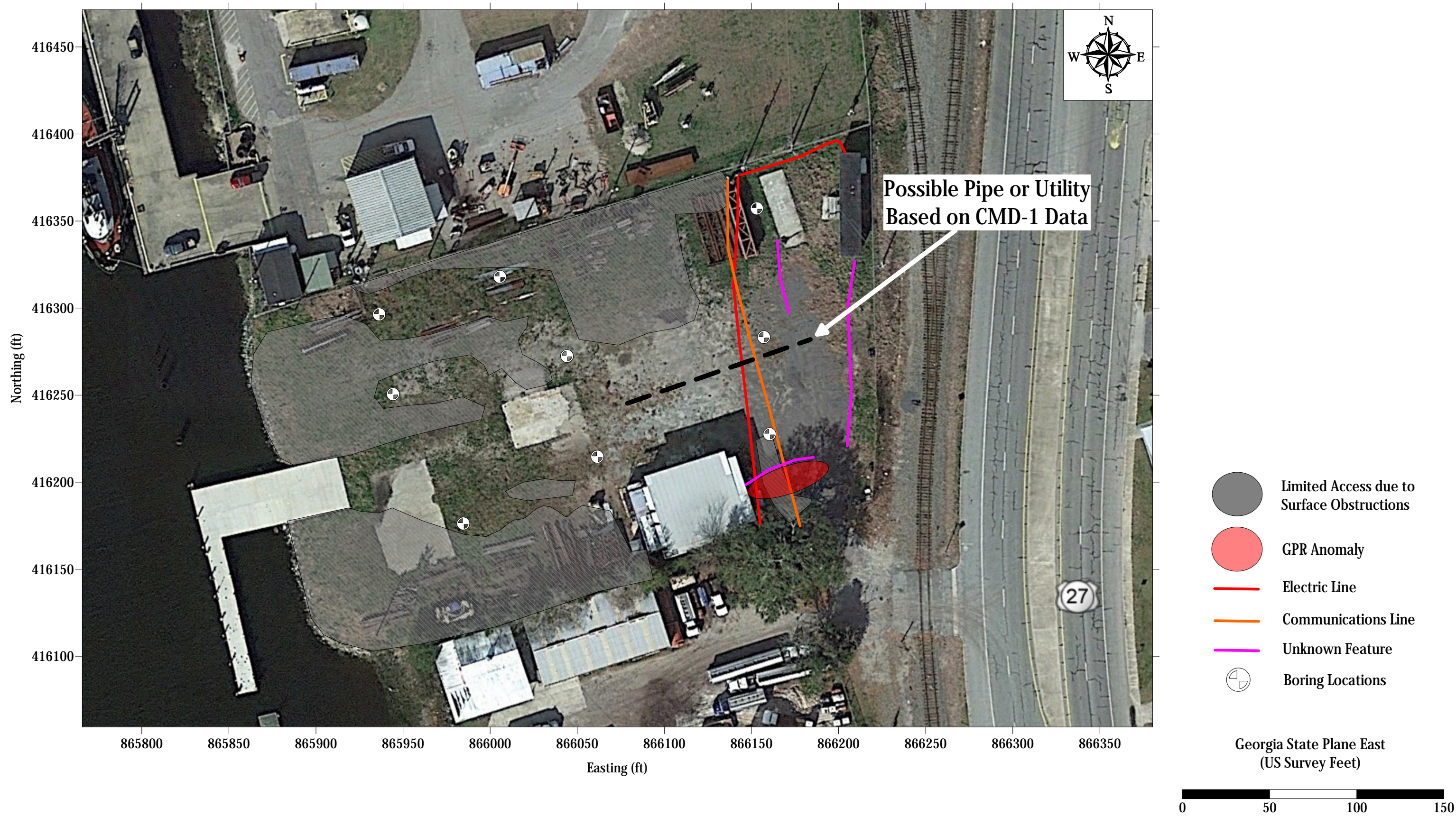
Although geophysical methods provide a high level of assurance of the subsurface, the possibility exists that not all features can or will be identified. The parties understand that no method can be as exact and reliable as an actual excavation and physical examination as provided by boreholes. Therefore, due caution should be used during construction and GEL Solutions will not be liable for any damages that may occur during future site activities or usage.

GEL Solutions appreciates the opportunity to assist Tetra Tech with this investigation. If you have any questions regarding this report, or need additional information, please feel free to contact us at 770-980-1002.

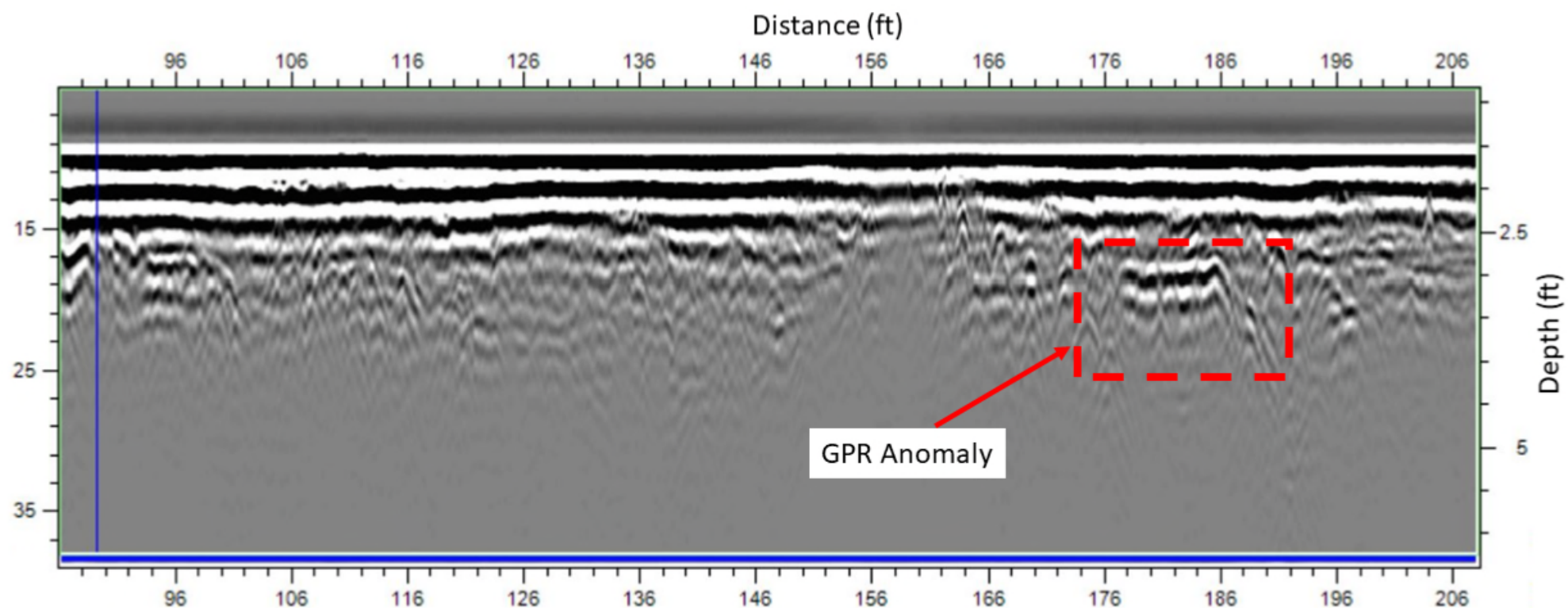
Yours truly,

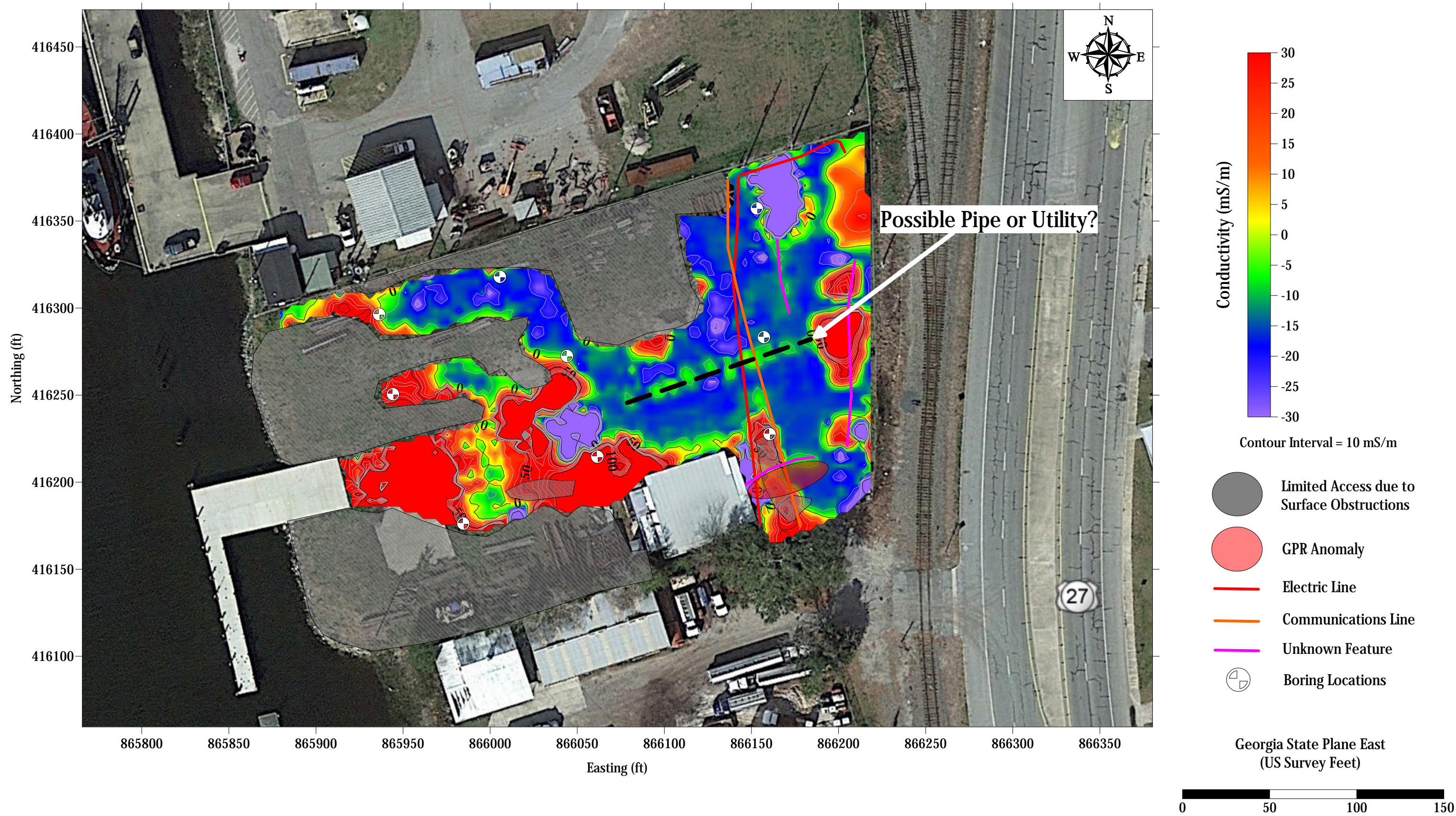


Eric Armstrong  
Geophysics Specialist

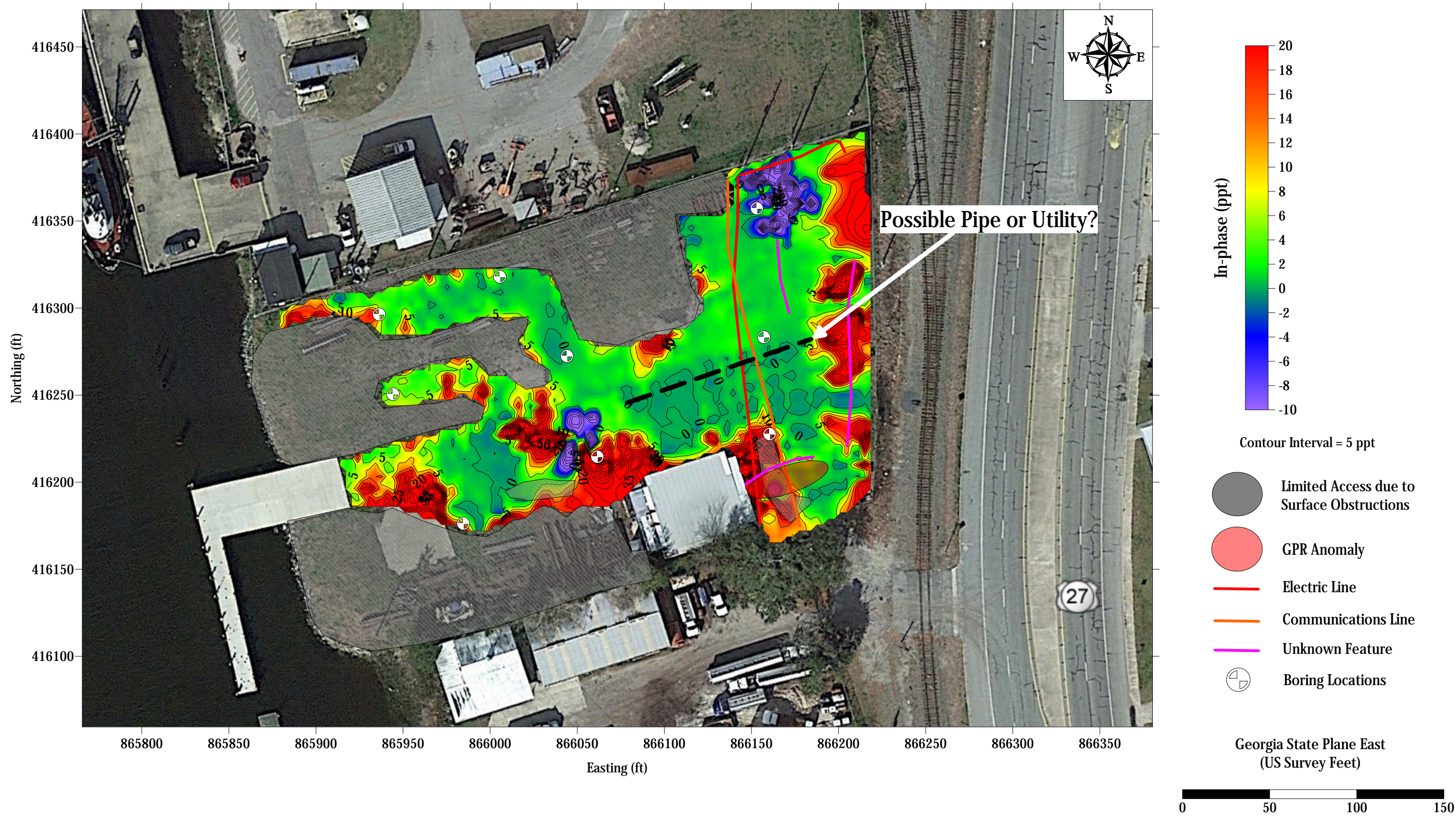


**Figure 1. Map of Identified Features**





**Figure 3. Conductivity Map**

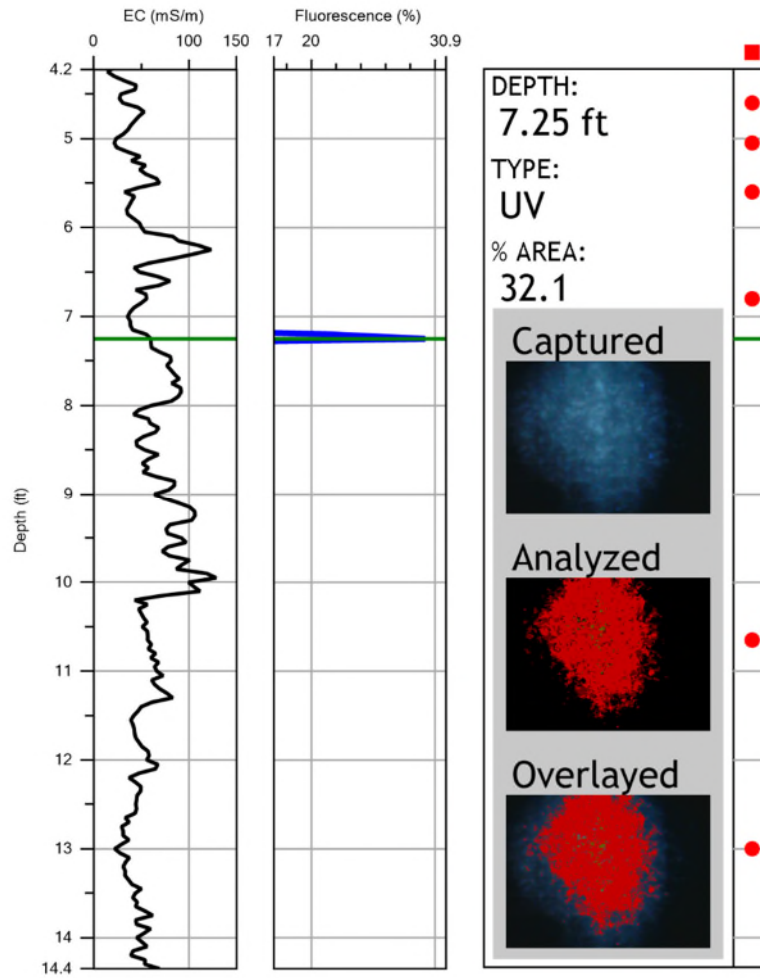


**Figure 4. In-phase Map**

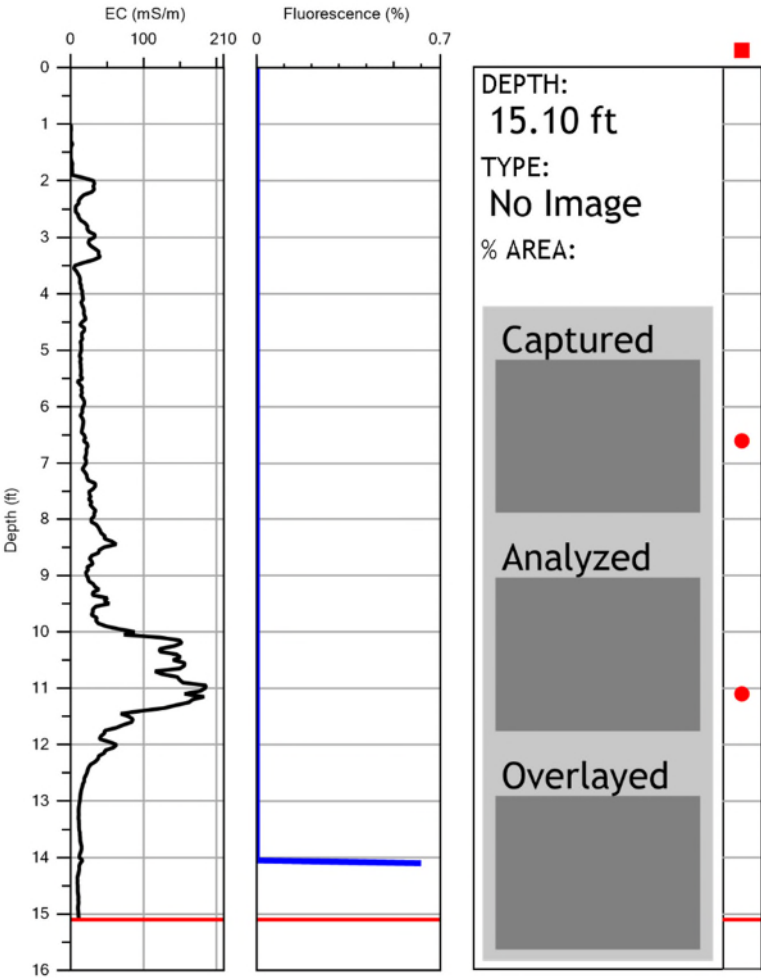
**ATTACHMENT 2**  
**OPTICAL IMAGE PROFILING LOGS**  
(15 Pages)



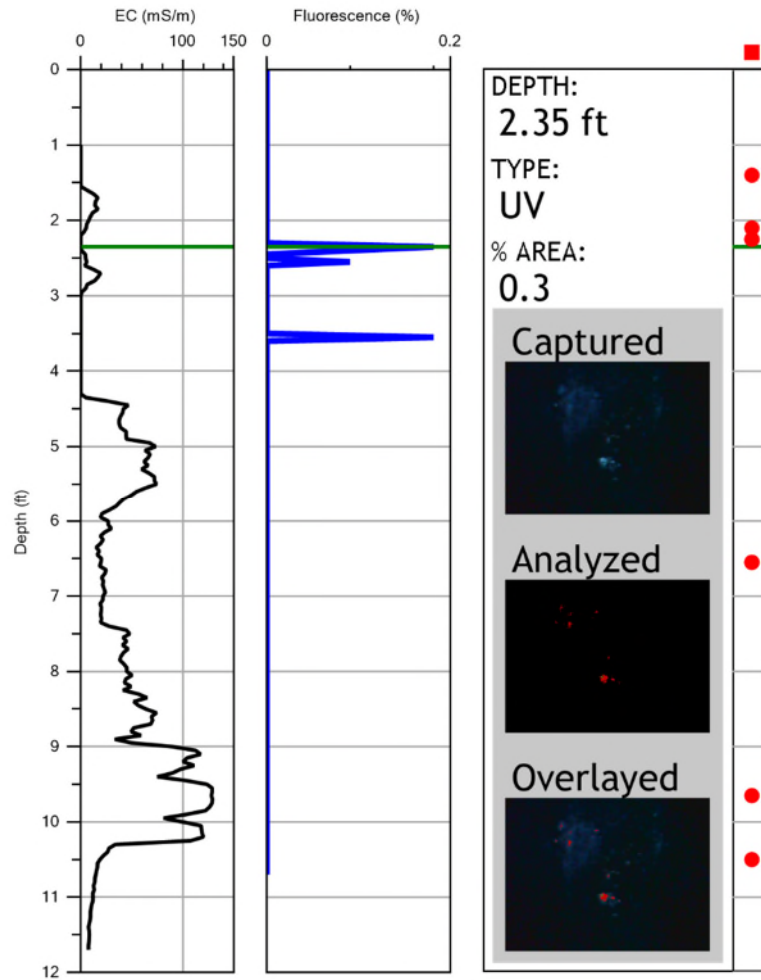
## Boring A1



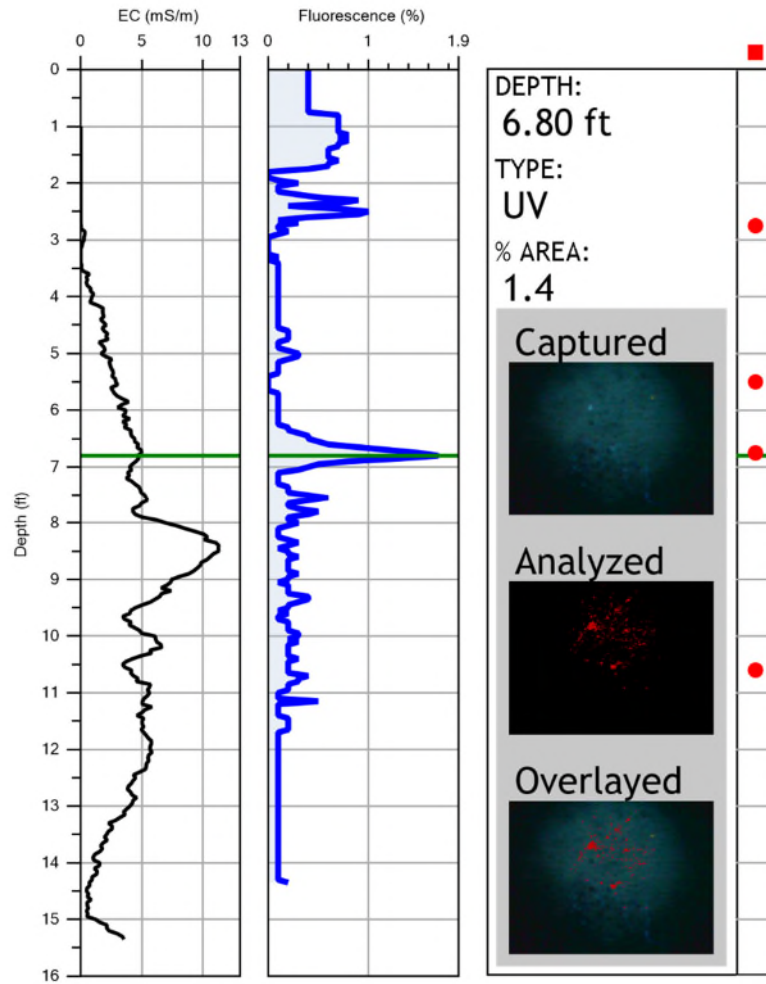
Boring A15



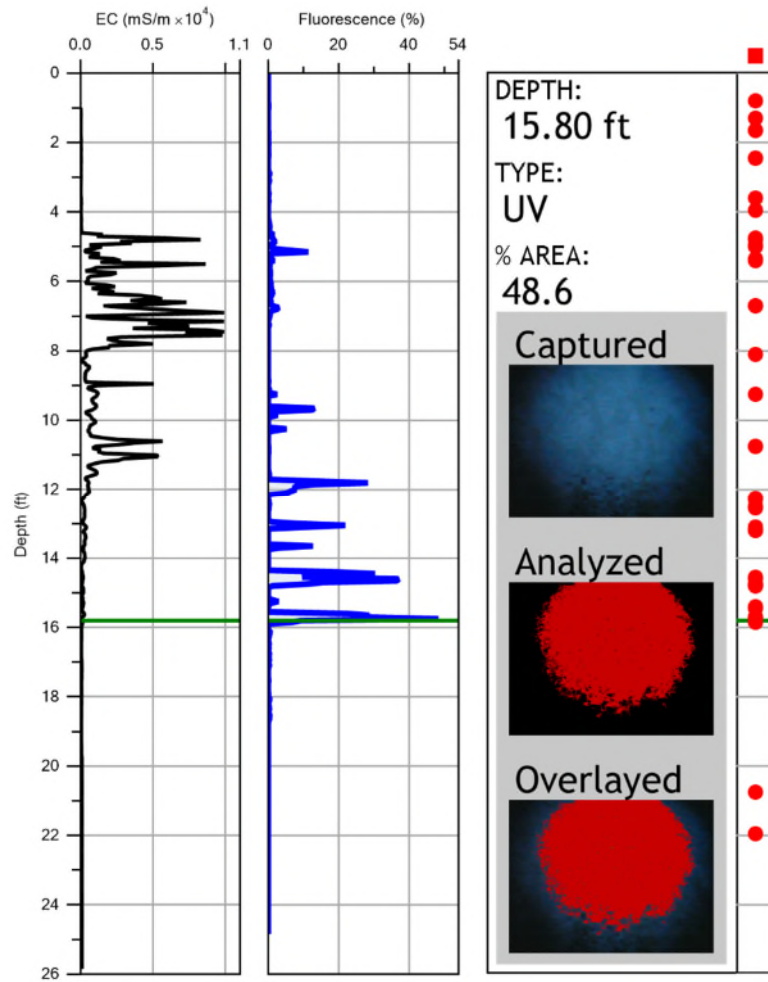
## Boring A2



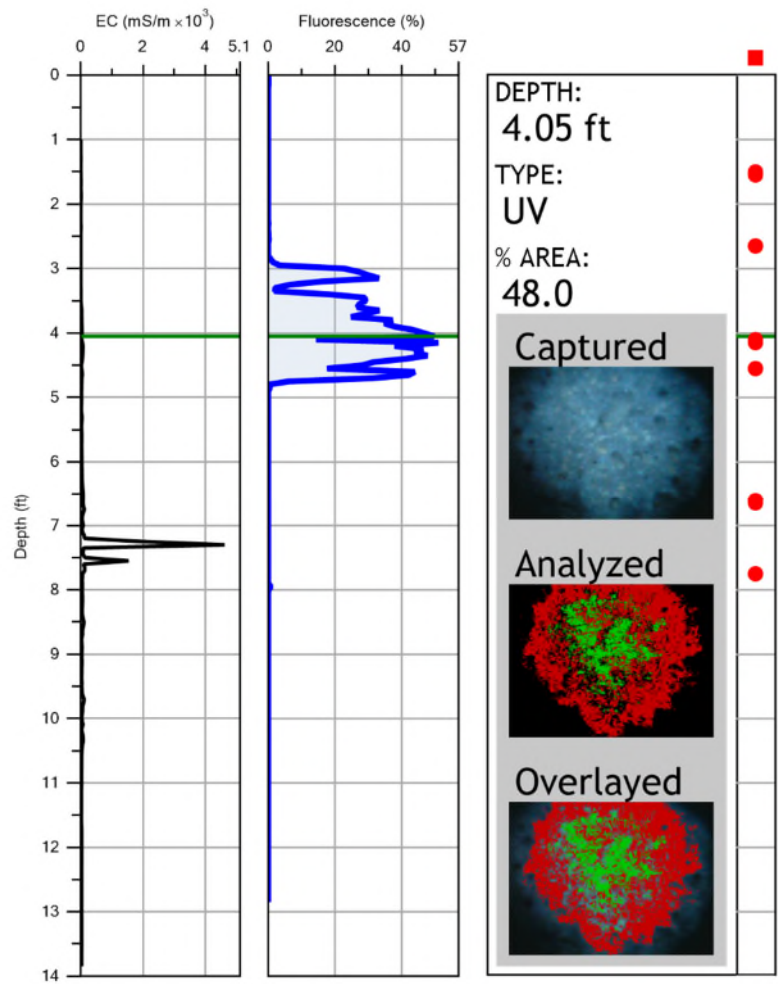
## Boring A3



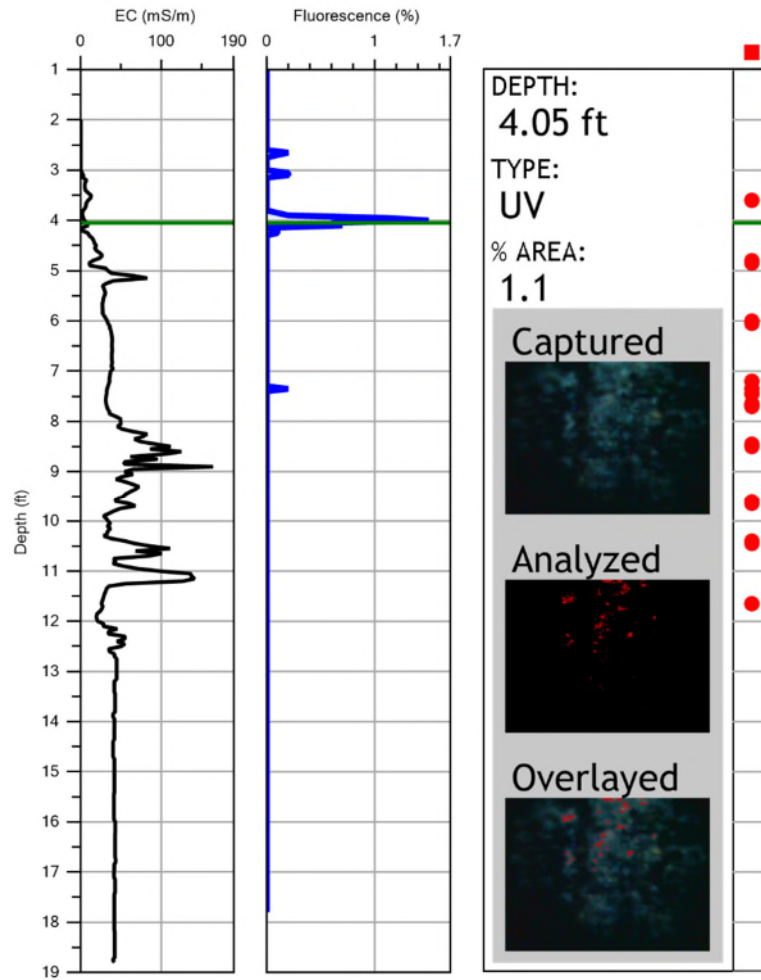
## Boring B1



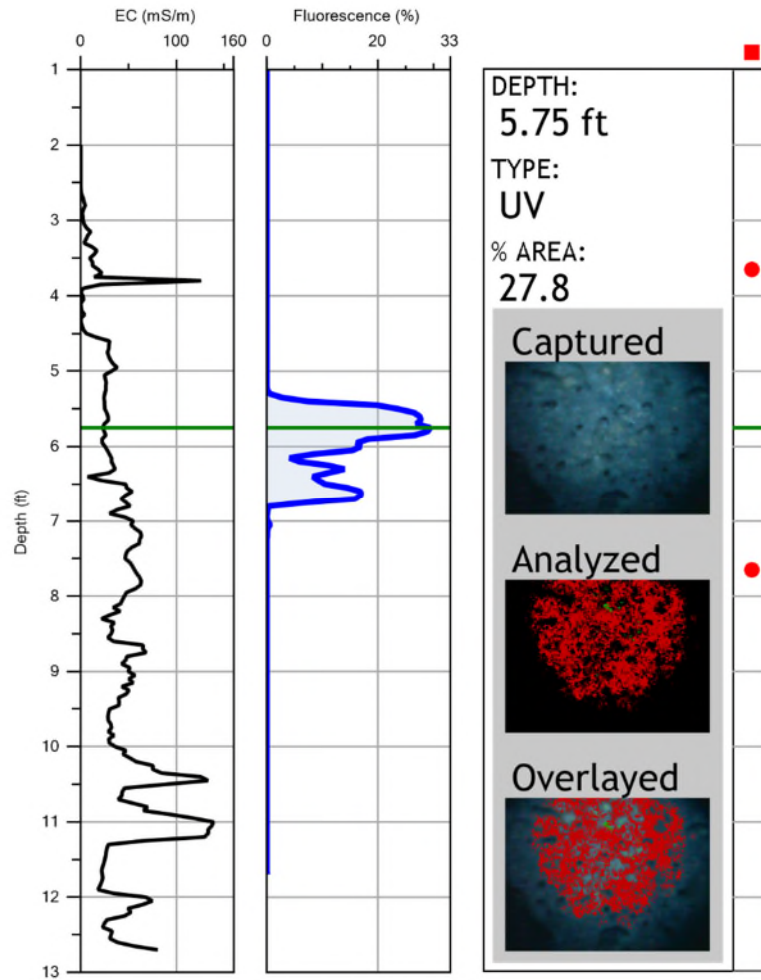
Boring B15



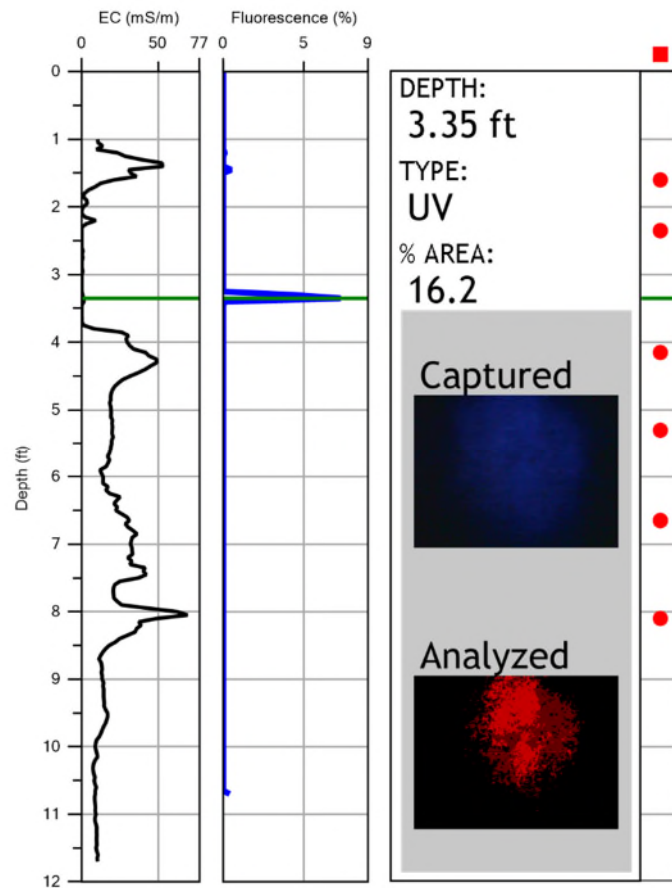
## Boring B15a



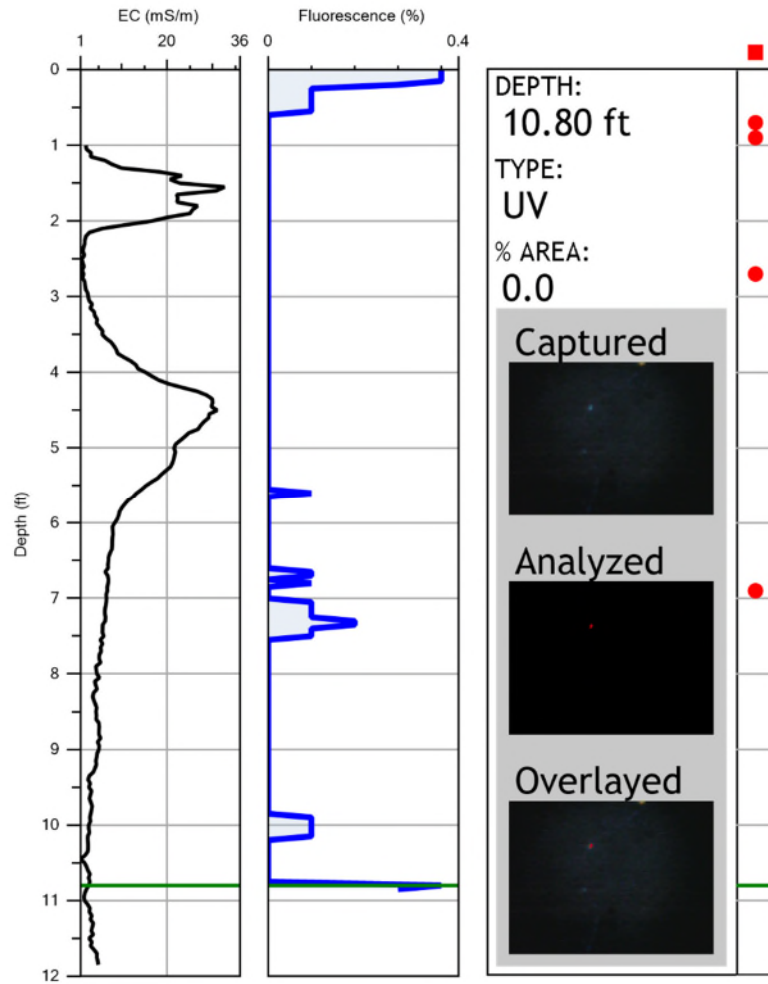
## Boring B15b



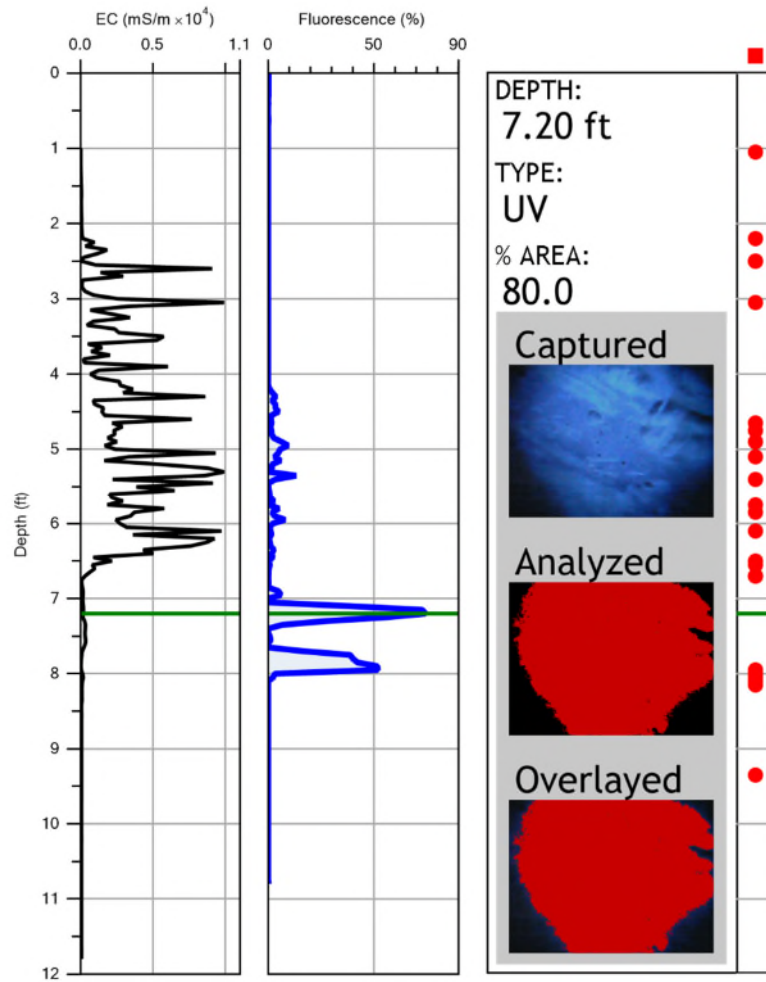
## Boring B2



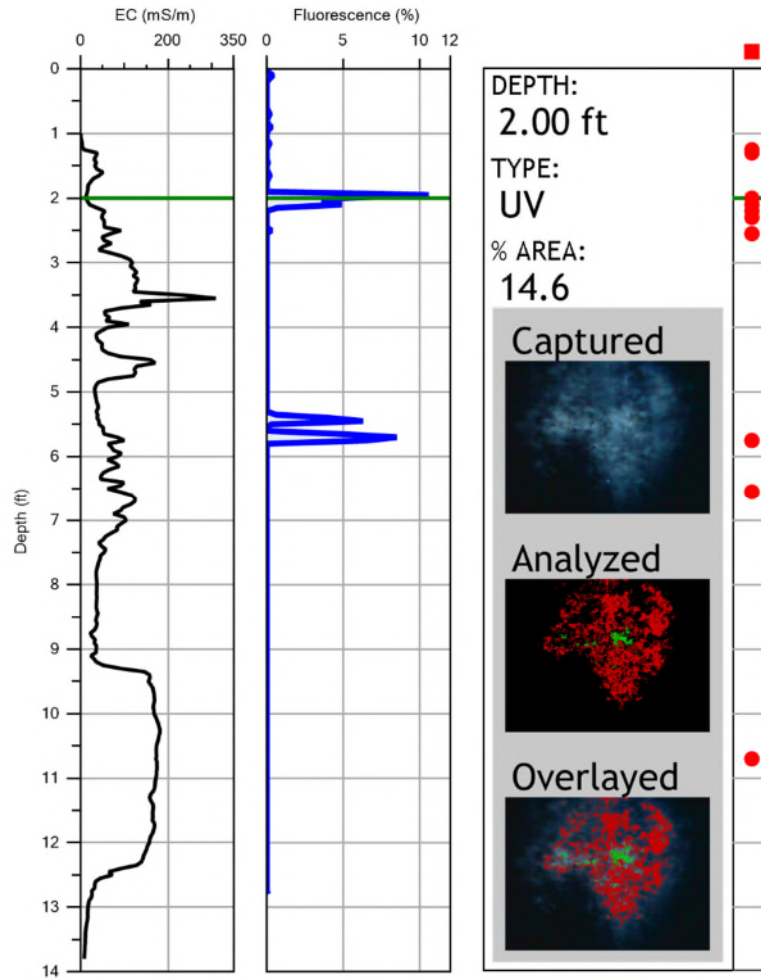
## Boring B3



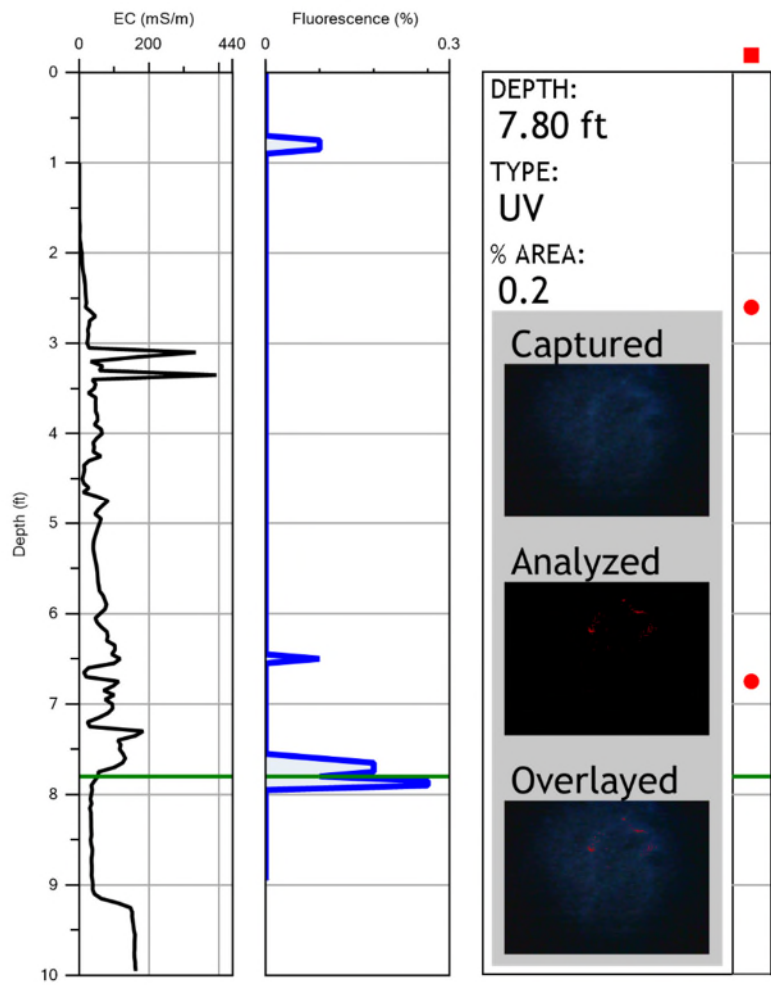
## Boring C1



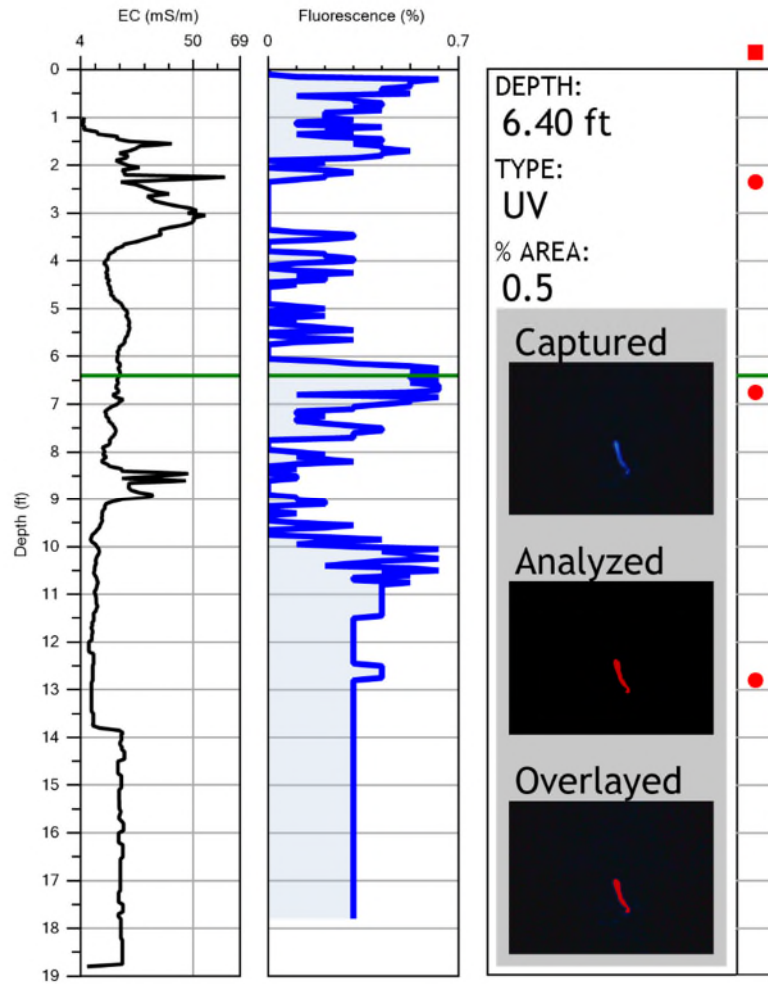
## Boring C125



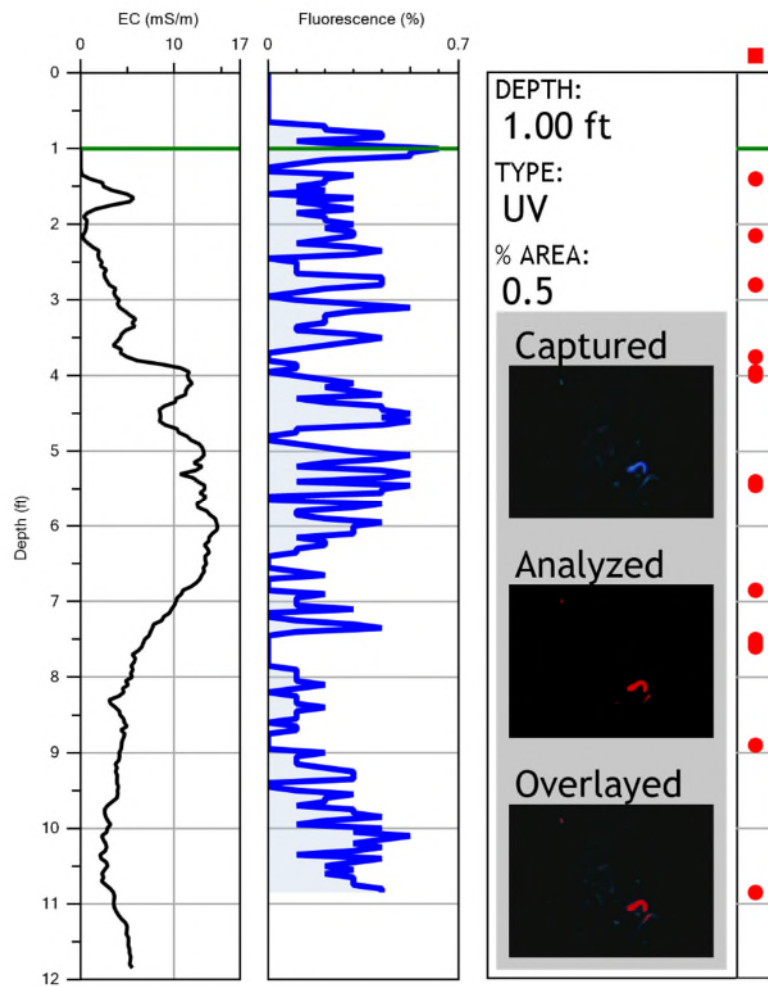
Boring C15



## Boring C2



## Boring C3



**ATTACHMENT 3**  
**LABORATORY ANALYTICAL DATA PACKAGE**  
(13 Pages)



## ANALYTICAL REPORT

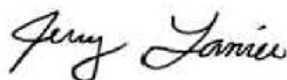
Eurofins TestAmerica, Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404  
Tel: (912)354-7858

Laboratory Job ID: 680-189047-1  
Client Project/Site: Mayors Point

**For:**

Tetra Tech EM Inc.  
1955 Evergreen Blvd.  
Bldg. 200; Suite 300  
Duluth, Georgia 30096

Attn: Jessica Vickers



Authorized for release by:  
9/28/2020 9:07:30 PM

Jerry Lanier, Project Manager I  
(912)250-0281  
[Jerry.Lanier@Eurofinset.com](mailto:Jerry.Lanier@Eurofinset.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

## Definitions/Glossary

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

### Qualifiers

#### GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Sample Summary

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
680-189047-1	PC-SB-C3	Solid	09/22/20 22:10	09/23/20 10:20	
680-189047-2	PC-SB-C1	Solid	09/22/20 22:20	09/23/20 10:20	

# Case Narrative

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

**Job ID: 680-189047-1**

**Laboratory: Eurofins TestAmerica, Savannah**

## Narrative

### CASE NARRATIVE

**Client: Tetra Tech EM Inc.**

**Project: Mayors Point**

**Report Number: 680-189047-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

#### RECEIPT

The samples were received on 09/23/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.9 C.

#### DIESEL RANGE ORGANICS (DRO)

Samples PC-SB-C3 (680-189047-1) and PC-SB-C1 (680-189047-2) were analyzed for Diesel Range Organics (DRO) in accordance with EPA SW-846 Method 8015C. The samples were prepared on 09/26/2020 and analyzed on 09/27/2020.

Due to the nature of this analysis which involves a total area sum over the entire retention time range, manual integrations are routinely performed for target analytes and surrogates to ensure consistent integration.

Diesel Range Organics [C10-C28] failed the recovery criteria high for the MS of sample PC-SB-C1 (680-189047-2) in batch 680-636260.

Diesel Range Organics [C10-C28] failed the recovery criteria low for the MSD of sample PC-SB-C1 (680-189047-2) in batch 680-636260.

Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### 8015C DRO

Samples PC-SB-C3 (680-189047-1) and PC-SB-C1 (680-189047-2) were analyzed for 8015C DRO in accordance with 8015C\_GRO\_DOD5. The samples were prepared on 09/24/2020 and analyzed on 09/28/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### PERCENT SOLIDS/MOISTURE

Samples PC-SB-C3 (680-189047-1) and PC-SB-C1 (680-189047-2) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 09/28/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Client Sample Results

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

Client Sample ID: PC-SB-C3

Lab Sample ID: 680-189047-1

Date Collected: 09/22/20 22:10

Matrix: Solid

Date Received: 09/23/20 10:20

Percent Solids: 78.9

## Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<25		25		mg/Kg	☆	09/24/20 10:54	09/28/20 03:58	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	80		70 - 131				09/24/20 10:54	09/28/20 03:58	100

## Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	<4.1		4.1		mg/Kg	☆	09/26/20 13:42	09/27/20 19:58	1
Oil Range Organics (C20-C36)	<25		25		mg/Kg	☆	09/26/20 13:42	09/27/20 19:58	1

Client Sample ID: PC-SB-C1

Lab Sample ID: 680-189047-2

Date Collected: 09/22/20 22:20

Matrix: Solid

Date Received: 09/23/20 10:20

Percent Solids: 59.2

## Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	50		39		mg/Kg	☆	09/24/20 10:54	09/28/20 04:21	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	82		70 - 131				09/24/20 10:54	09/28/20 04:21	100

## Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	370	F1	5.3		mg/Kg	☆	09/26/20 13:42	09/27/20 17:23	1
Oil Range Organics (C20-C36)	49		32		mg/Kg	☆	09/26/20 13:42	09/27/20 17:23	1

# QC Sample Results

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

## Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Lab Sample ID: MB 680-636246/32

Matrix: Solid

Analysis Batch: 636246

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<10		10		mg/Kg			09/27/20 23:26	100
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	92		70 - 131					09/27/20 23:26	100

Lab Sample ID: LCS 680-636246/30

Matrix: Solid

Analysis Batch: 636246

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10	50.0	51.5		mg/Kg		103	64 - 133		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
a,a,a-Trifluorotoluene	106		70 - 131						

Lab Sample ID: LCSD 680-636246/31

Matrix: Solid

Analysis Batch: 636246

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	50.0	48.9		mg/Kg		98	64 - 133	5	50
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene	105		70 - 131						

## Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Lab Sample ID: MB 680-636029/11-A

Matrix: Solid

Analysis Batch: 636260

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 636029

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	<3.3		3.3		mg/Kg		09/26/20 13:42	09/27/20 16:52	1
Oil Range Organics (C20-C36)	<20		20		mg/Kg		09/26/20 13:42	09/27/20 16:52	1

Lab Sample ID: LCS 680-636029/12-A

Matrix: Solid

Analysis Batch: 636260

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 636029

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]	65.0	62.6		mg/Kg		96	35 - 130		

Eurofins TestAmerica, Savannah

# QC Sample Results

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

## Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics) (Continued)

Lab Sample ID: 680-189047-2 MS  
Matrix: Solid  
Analysis Batch: 636260

Client Sample ID: PC-SB-C1  
Prep Type: Total/NA  
Prep Batch: 636029

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	370	F1	112	515	F1	mg/Kg	✱	132	35 - 130

Lab Sample ID: 680-189047-2 MSD  
Matrix: Solid  
Analysis Batch: 636260

Client Sample ID: PC-SB-C1  
Prep Type: Total/NA  
Prep Batch: 636029

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	370	F1	109	359	F1	mg/Kg	✱	-7	35 - 130	36	50

## QC Association Summary

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

### GC VOA

#### Prep Batch: 635765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-189047-1	PC-SB-C3	Total/NA	Solid	5035A	
680-189047-2	PC-SB-C1	Total/NA	Solid	5035A	

#### Analysis Batch: 636246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-189047-1	PC-SB-C3	Total/NA	Solid	8015C	635765
680-189047-2	PC-SB-C1	Total/NA	Solid	8015C	635765
MB 680-636246/32	Method Blank	Total/NA	Solid	8015C	
LCS 680-636246/30	Lab Control Sample	Total/NA	Solid	8015C	
LCSD 680-636246/31	Lab Control Sample Dup	Total/NA	Solid	8015C	

### GC Semi VOA

#### Prep Batch: 636029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-189047-1	PC-SB-C3	Total/NA	Solid	3546	
680-189047-2	PC-SB-C1	Total/NA	Solid	3546	
MB 680-636029/11-A	Method Blank	Total/NA	Solid	3546	
LCS 680-636029/12-A	Lab Control Sample	Total/NA	Solid	3546	
680-189047-2 MS	PC-SB-C1	Total/NA	Solid	3546	
680-189047-2 MSD	PC-SB-C1	Total/NA	Solid	3546	

#### Analysis Batch: 636260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-189047-1	PC-SB-C3	Total/NA	Solid	8015C	636029
680-189047-2	PC-SB-C1	Total/NA	Solid	8015C	636029
MB 680-636029/11-A	Method Blank	Total/NA	Solid	8015C	636029
LCS 680-636029/12-A	Lab Control Sample	Total/NA	Solid	8015C	636029
680-189047-2 MS	PC-SB-C1	Total/NA	Solid	8015C	636029
680-189047-2 MSD	PC-SB-C1	Total/NA	Solid	8015C	636029

### General Chemistry

#### Analysis Batch: 636293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-189047-1	PC-SB-C3	Total/NA	Solid	Moisture	
680-189047-2	PC-SB-C1	Total/NA	Solid	Moisture	

# Lab Chronicle

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

**Client Sample ID: PC-SB-C3**

**Lab Sample ID: 680-189047-1**

**Date Collected: 09/22/20 22:10**

**Matrix: Solid**

**Date Received: 09/23/20 10:20**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			636293	09/28/20 07:28	JEB	TAL SAV
Instrument ID: NOEQUIP										

**Client Sample ID: PC-SB-C3**

**Lab Sample ID: 680-189047-1**

**Date Collected: 09/22/20 22:10**

**Matrix: Solid**

**Date Received: 09/23/20 10:20**

**Percent Solids: 78.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035A			2.802 g	5 mL	635765	09/24/20 10:54	FES	TAL SAV
Total/NA	Analysis	8015C		100	5 mL	5 mL	636246	09/28/20 03:58	JCK	TAL SAV
Instrument ID: CVGWFD1										
Total/NA	Prep	3546			15.39 g	1 mL	636029	09/26/20 13:42	MEW	TAL SAV
Total/NA	Analysis	8015C		1			636260	09/27/20 19:58	JCK	TAL SAV
Instrument ID: CSGAB1										

**Client Sample ID: PC-SB-C1**

**Lab Sample ID: 680-189047-2**

**Date Collected: 09/22/20 22:20**

**Matrix: Solid**

**Date Received: 09/23/20 10:20**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			636293	09/28/20 07:28	JEB	TAL SAV
Instrument ID: NOEQUIP										

**Client Sample ID: PC-SB-C1**

**Lab Sample ID: 680-189047-2**

**Date Collected: 09/22/20 22:20**

**Matrix: Solid**

**Date Received: 09/23/20 10:20**

**Percent Solids: 59.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035A			2.594 g	5 mL	635765	09/24/20 10:54	FES	TAL SAV
Total/NA	Analysis	8015C		100	5 mL	5 mL	636246	09/28/20 04:21	JCK	TAL SAV
Instrument ID: CVGWFD1										
Total/NA	Prep	3546			15.71 g	1 mL	636029	09/26/20 13:42	MEW	TAL SAV
Total/NA	Analysis	8015C		1			636260	09/27/20 17:23	JCK	TAL SAV
Instrument ID: CSGAB1										

## Laboratory References:

TAL SAV = Eurofins TestAmerica, Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

## Accreditation/Certification Summary

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

### Laboratory: Eurofins TestAmerica, Savannah

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Georgia	State	E87052	06-30-21

1

2

3

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12

## Method Summary

Client: Tetra Tech EM Inc.  
Project/Site: Mayors Point

Job ID: 680-189047-1

Method	Method Description	Protocol	Laboratory
8015C	Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)	SW846	TAL SAV
8015C	Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV
3546	Microwave Extraction	SW846	TAL SAV
5035A	Closed System Purge & Trap/Field Methanol	SW846	TAL SAV

### Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL SAV = Eurofins TestAmerica, Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

<b>Section A</b> Required Client Information: Company: <u>Testa Tech</u> Address: <u>1955 Evergreen Blvd</u> Email To: <u>chris.jones@testatech.com</u> Phone: <u>703-600-3000</u> Fax: <u></u> Requested Due Date/TAT: <u>Standard</u>		<b>Section B</b> Required Project Information: Report To: <u>Chris Jones</u> Copy To: <u>john.snyder@testatech.com</u> Purchase Order No.: <u></u> Project Name: <u>Mayors Point</u> Project Number: <u></u>		<b>Section C</b> Invoice Information: Attention: <u>Chris Jones</u> Company Name: <u></u> Address: <u></u> Pace Quote Reference: <u></u> Pace Project Manager: <u>Beth Daughtry</u> Pace Profile #: <u></u>	
Page: <u>1</u> of <u>1</u> 2018817		REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER <u></u>			
Site Location STATE: <u>GA</u>					

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Y/N	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB								
1	PC-SB-C3		DATE	TIME		SL G	9/12/22	2210				
2	PC-SB-C1		DATE	TIME		SL G	9/12/22	2220				
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

ADDITIONAL COMMENTS <u>John Snyder / TT 9/12/23 1023</u> <u>25(GF)2-9c</u>		RELINQUISHED BY / AFFILIATION <u>John Snyder</u>		DATE <u>9/23/2023</u>		ACCEPTED BY / AFFILIATION <u>John Snyder</u>		DATE <u>09/23/20</u>		SAMPLE CONDITIONS Received on Ice (Y/N) Custody Sealed Cooler (Y/N) Samples Intact (Y/N)	
SAMPALER NAME AND SIGNATURE PRINT Name of SAMPALER: <u>John Snyder</u> SIGNATURE of SAMPALER: <u>[Signature]</u>											

## Login Sample Receipt Checklist

Client: Tetra Tech EM Inc.

Job Number: 680-189047-1

Login Number: 189047

List Source: Eurofins TestAmerica, Savannah

List Number: 1

Creator: Banda, Christy S

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	